

Remarks

Reconsideration of this Application is respectfully requested.

Claims 1-22 and 26-28 are pending in the application, with Claims 1, 6, 12, 19, and 26 being the independent claims. Claims 23-25 have previously been cancelled.

Based on the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Rejections under 35 U.S.C. § 102

Claims 1-6, 9-11, and 19-22 stand rejected under 35 U.S.C. 102(b) as being allegedly anticipated by U.S. Pat. Pub. No. 2003/0081781 to Jensen ("Jensen"). Although the Office Action lists Jensen's Publication Number as 2003/0091781, Applicants believe that the listed publication number is incorrect since it belongs to a recording medium application by Arakawa, et al. Since 2003/0081781 is directed to a coding system by Jensen, Applicants respond to the Office Action based on 2003/0081781.

Applicants respectfully traverse the rejection based on Jensen. Jensen is directed to an audio encoder, which adds components of a code signal having various amplitudes to an existing audio signal. The purpose of the signal having various amplitudes is so that it is inaudible to anyone who is listening to the audio signal (*see Jensen Abstract*). Thus, Jensen deals with adjusting an amplitude of a code portion of a signal so that listeners cannot hear the code portion over the audio portion of the signal. Jensen has nothing to do with a system or method for down-converting a FM signal wherein the

aliasing rate, or sample rate, is adjusted based upon a demodulated baseband information signal. Indeed, the only time aliasing is mentioned in Jensen is when the system of Jensen is described as reducing and/or preventing aliasing altogether. This is very different from the system and method of the present application, in which a signal is aliased, or sampled, at a rate based on a demodulated baseband information signal.

Jensen neither teaches or suggests each and every element of claim 1. The Examiner references Jensen, page 8, section 0072, as support for the assertion that Jensen teaches "aliasing the FM signal at an aliasing rate, said aliasing rate being determined by the frequency of the FM signal." (Office Action, p. 2, paragraph 3). However, this referenced section of Jensen does not teach that the signal should be aliased. In fact, this section of Jensen is directed to preventing aliasing: "The filter 120 also serves to remove high frequency components of the audio signal which may cause aliasing when the signal is subsequently digitized by an analog-to-digital convertor [sic] (A/D) 124 operating at a sufficiently high sampling rate." Thus, Jensen is directed to removing aliasing, not using aliasing as a sampling mechanism.

The Examiner also references Jensen, page 5, section 0057, as support for the assertion that Jensen teaches adjusting the aliasing rate. Again, this section of Jensen does not refer to aliasing at all. Section 0057 of Jensen does discuss "level adjustment" for each data state corresponding to a given signal interval, but "level adjustment" is defined in section 0058 of Jensen as referring to amplitude level adjustment: "Level adjustment is carried out for each of the code components based upon the relevant masking evaluations . . . , and the code components whose amplitude has been adjusted to ensure inaudibility are added to the digitized audio signal." Thus, Jensen is not directed to adjusting an aliasing rate, but is instead directed to adjusting an amplitude level of

code portions of a signal after evaluating the frequency which will be masking the code portion.

Finally, the Examiner references Jensen, page 6, section 0064, as support for the assertion that Jensen outputs a demodulated baseband information signal wherein the aliasing rate is based upon the demodulated baseband information signal. Again, this section of Jensen does not discuss a demodulated baseband information signal, nor does it discuss aliasing at all, much less an aliasing rate based on a demodulated baseband information signal. This section of Jensen is instead directed to inputting a data signal, and generating a set of frequency components for each symbol in the data signal to be encoded onto the primary audio signal, wherein a specific frequency is assigned to a specific data symbol. This does not involve an aliasing rate, nor is it based on a demodulated baseband information signal. Further, instead of outputting a demodulated baseband information signal, the output of the system is a combination of the primary audio signal and the encoded data signal.

Therefore, Applicants respectfully submit that Jensen neither teaches nor suggests any of the features of claim 1, and that claim 1 is thus patentable over Jensen. Reconsideration and withdrawal of the rejection of claim 1 is respectfully requested.

Applicants respectfully submit that claim 2 is patentable over Jensen for at least the same reasons as discussed with respect to claim 1. Further, the Examiner references Jensen, page 6, section 0064 and page 7, section 0065, as support for the assertion that the aliasing rate is substantially equal to a sub-harmonic of a frequency of the FM signal. However, these sections of Jensen do not discuss an aliasing, or sampling, rate. Further, although these sections do discuss assigning a specific frequency value to a particular code symbol, they do not discuss aliasing an FM signal having any particular frequency

or a sub-harmonic thereof. For at least these additional reasons, Applicants respectfully submit that claim 2 is patentable over Jensen.

Regarding claim 3, the Examiner references page 5, section 0051, and page 8, section 0072, for the assertion that Jensen teaches "adjusting the aliasing rate in accordance with frequency changes of the FM signal to maintain the aliasing rate substantially equal to the frequency of the FM signal." Although Applicants disagree with the Examiner's assertion and characterization of Jensen, Applicants also submit that this assertion is not relevant to claim 3, since claim 3 features "aliasing the FM signal at an aliasing rate that is substantially equal to a frequency of the FM signal." As discussed with respect to claim 2, Jensen does not discuss aliasing an FM signal at an aliasing rate substantially equal to a frequency of the FM signal. For at least these reasons, and for the reasons discussed with respect to claim 1, Applicants submit that claim 3 is patentable over Jensen.

Applicants respectfully submit that claim 4 is patentable over Jensen for at least the reasons discussed with respect to claim 1. Further, the Examiner references Jensen, page 6, section 0058, as support for the assertion that Jensen teaches a method of compensating for phase delays to maintain bandwidth and stability. However, this section of Jensen only discusses delaying the entire primary audio signal, so that the code portion of the signal can go through an amplitude adjustment process. This has nothing to do with phase, bandwidth, or stability. For at least these additional reasons, Applicants respectfully submit that claim 4 is patentable over Jensen.

Regarding claim 5, the Examiner references page 6, section 0058, for the assertion that Jensen teaches "compensating for phase delays to maintain stability by adjusting said control signal to create a compensated control signal; and creating said

aliasing signal using said compensated control signal." Although Applicants disagree with the Examiner's assertion and characterization of Jensen, Applicants also submit that this assertion is not relevant to claim 5, since claim 5 features "the method of claim 1, wherein the FM signal has a frequency substantially equal to a Family Radio Service frequency." Even so, Jensen does not discuss a Family Radio Service frequency. For at least these reasons, and for the reasons discussed with respect to claim 1, Applicants submit that claim 5 is patentable over Jensen.

Regarding claims 6 and 10, it appears that most of the rejection has not been updated since the previous Office Action issued on June 25, 2004, since the rejection includes the exact same reference numbers for some features of claims 6 and 10 as previously asserted by the Examiner based on Pardoen, even though the reference numbers do not correspond at all to the current assertion based on Jensen. Further, regarding the portion of the rejection that does include reference to Jensen, Applicant respectfully submits that the rejection does not take into consideration the amendment to claim 6 submitted October 6, 2004. For example, the Examiner makes no assertion that Jensen teaches or suggests "combining said first down-converted signal and said second down-converted signal to create a summation signal" or "integrating said summation signal to create a control signal" as recited in claim 6. As this rejection is thus insufficient to show that Jensen teaches any of those features, Applicants respectfully submit that Jensen neither teaches nor suggests each and every element of claims 6 and 10.

Further, the referenced sections in Jensen also neither teach or suggest the remaining features of claims 6 and 10 that are discussed by the Examiner. For example, Jensen does not discuss "generating said first and second LO signals based on said

control signal", or "outputting said control signal" as recited in claim 6. The first and second intervals of the audio signal discussed in section 0058 of Jensen merely refer to the portion of the audio signal received during one time interval and the portion of the audio signal received during another time interval. This is not the same as two different LO signals, which are in turn different from the FM signal. Jensen also does not discuss "first and second LO signals" that "are substantially equal to a sub-harmonic of the carrier frequency of the FM signal," as recited in claim 10. For at least these reasons, Applicants respectfully submit that claims 6 and 10 are patentable over Jensen.

Regarding claim 9, Applicants respectfully submit that claim 9 is patentable over Jensen for at least the reasons discussed with respect to claim 6, from which claim 9 depends. Further, the Examiner references Jensen, page 6, section 0058, as support for the assertion that Jensen teaches compensating for phase delays to create a compensated control signal and creating an aliasing signal using the compensated control signal. However, as discussed with respect to claim 4, Jensen does not discuss phase delays. Further, Jensen does not discuss creating first and second LO signals using a compensated control signal. For at least these additional reasons, Applicants respectfully submit that claim 9 is patentable over Jensen.

Regarding claim 11, the Examiner references page 6, section 0058, for the assertion that Jensen teaches "adjusting the aliasing rate in accordance with frequency changes of the FM signal to maintain the first and second LO signals substantially equal to the frequency of the FM signal." Although Applicants disagree with the Examiner's assertion and characterization of Jensen, Applicants also submit that claim 11 does not recite adjusting an aliasing rate in accordance with frequency changes of the FM signal to maintain the first and second LO signals. Instead, claim 11 recites the method of

claim 6, "wherein the first and second LO signals are substantially equal to the carrier frequency of the FM signal." First and second LO signals are not discussed in Jensen, nor is a carrier frequency. For at least these reasons, and for the reasons discussed with respect to claim 6, Applicants submit that claim 11 is patentable over Jensen.

Regarding claim 19, the Examiner alleges that claim 19 includes various elements which are not actually recited in claim 19. For example, claim 19 does not recite "said first LO signal having a first LO frequency and a first LO phase," or "said second LO signal having a second LO frequency and a second LO phase wherein said second LO frequency is substantially the same as said first LO frequency, and wherein said second LO phase is shifted relative to said first LO phase." Further, the Examiner does not address features of claim 19 which are actually recited in claim 19, such as "generating a control signal from said first and second down-converted signals, wherein said first and second LO signals are generated from said control signal; and adjusting said control signal based on frequency changes of the FM signal." Thus, Jensen is not asserted as being relevant to any of the recited features of claim 19.

Further, even if it were asserted, Jensen does not teach or suggest the recited features of claim 19, since Jensen does not discuss, for example, first and second LO signals or first and second down-converted signals. For at least these reasons, Applicants respectfully submit that claim 19 is patentable over Jensen.

Applicants respectfully submit that claim 20 is patentable over Jensen for at least the same reasons discussed with respect to claim 19. Additionally, the Examiner references page 5, section 0053 as support for the assertion that Jensen teaches summing the first and second down-converted signals and integrating the summation signal. However, this section of Jensen does not discuss down-converted signals, but merely

assigning amplitude levels to code components and then summing those code components with a primary audio signal. This is not the same as summing two down-converted signals and integrating the summation signal. For at least these reasons, Applicants respectfully submit that claim 20 is patentable over Jensen.

Regarding claim 21, the Examiner references page 5, section 0058, for the assertion that Jensen teaches "adjusting said control signal to maintain said mixer signal at a value substantially equal to zero." Although Applicants disagree with the Examiner's assertion and characterization of Jensen, Applicants also point out that claim 21 does not involve a mixer signal, but instead a summation signal. Further, Jensen does not discuss making any adjustments to maintain any signal at a value substantially equal to zero. For at least these reasons, and for the reasons discussed with respect to claim 19, Applicants submit that claim 21 is patentable over Jensen.

Applicants respectfully submit that claim 22 is patentable over Jensen for at least the reasons discussed with respect to claim 19. Further, the Examiner references Jensen, page 6, sections 0058-0059, as support for the assertion that Jensen teaches one LO signal leading an FM signal while another LO signal lags the FM signal. However, the referenced sections of Jensen merely discuss adjusting the amplitude of a code signal based on the time-section of the primary signal it is combined with. As mentioned above, there is also no first or second LO signal. For at least these additional reasons, Applicants respectfully submit that claim 22 is patentable over Jensen.

Thus, Jensen neither teaches nor suggests, alone or in combination, each and every element of claims 1-6, 9-11, and 19-22. Reconsideration and withdrawal of the rejections of claims 1-6, 9-11, and 19-22 are thus respectfully requested.

Rejections under 35 U.S.C. § 103

Claims 7-8 stand rejected under 35 U.S.C. 103(a) as being allegedly unpatentable. It is unclear, however, as to the precise rejection, as the Examiner refers to "Jensen (US Patent 5,606,731)" in view of U.S. Pat. No. 5,600,680 to Mishima et al. ("Mishima"). However, U.S. Pat. No. 5,606,731 is issued to Pace *et al.*, not Jensen. Since the body of the rejection refers to "Jensen" throughout, Applicants assume for the purposes of this response that the rejection is made on the basis of Jensen (U.S. Pat. Appl. No. 2003/0081781) in view of Mishima. If this assumption is incorrect, Applicants ask the Examiner to further clarify the basis for the rejection.

Applicants respectfully traverse a rejection of claims 7 and 8 on the basis of Jensen in view of Mishima. Claims 7 and 8 depend from claim 6, and are thus patentable for the reasons discussed with respect to claim 6 and further in view of their own respective features.

Regarding claims 7 and 8, the Examiner alleges that Jensen "teaches a method wherein said second LO phase is shifted relative to said first LO phase by an amount that is substantially equal to one-half the period of the FM signal" (*see*, Office Action, page 6). The Examiner does not indicate a location in Jensen where this can be found, nor can Applicants locate support in Jensen for the Examiner's contention. As discussed with respect to claim 6, Jensen neither teaches nor suggests two different LO signals. Jensen also does not discuss phase shifting any type of signal. Since Jensen does not teach or suggest having different LO signals or phase shifting any type of signal, it would not be obvious to one of ordinary skill in the art to combine the phase comparator of Mishima with the invention of Jensen.

For at least these reasons, Applicants submit that claims 7 and 8 are patentable over Jensen in view of Mishima. Reconsideration and withdrawal of the rejections of claims 7 and 8 are respectfully requested.

Allowed Claims

Applicants thank the Examiner for indicating the allowability of claims 12-18 and 26-28.

Information Disclosure Statements

Applicants thank the Examiner for returning initialed copies of the PTO Form-1449s from IDSs filed March 24, 2004, and May 14, 2004. However, Applicants have not received complete initialed 1449s for all filed IDSs. Specifically, Applicants have not received any initialed copies of 1449s for the IDSs submitted by Applicants on January 3, 2003 (5 pages of 1449s) and July 11, 2003 (4 pages of 1449s).

Additionally, it appears that the Examiner overlooked several references when initialing other 1449s filed by Applicants, as they contain neither initials nor strikeouts. Specifically, in the IDS filed December 23, 2002, reference AI48 was overlooked. In the IDS filed January 11, 2002, references AI6, AI13, AI14, AN26, AO26, AP26, AQ26, AR26, AN27, AO27, AP27, AQ27, and AR27 were overlooked.

Applicants respectfully request that the above-listed references and 1449s be considered and made of record.

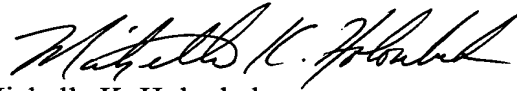
Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Reply is respectfully requested.

Respectfully submitted,

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